IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

JILL STEIN, et al.,	:	
Plaintiffs,	:	CIVIL ACTION
v.	:	
KATHY BOOCKVAR, in her official capacity as Acting Secretary of the Commonwealth, and JONATHAN MARKS, in his official capacity as Commissioner of the Bureau of Commissions, Elections and Legislation,	:	No. 16-cv-6287(PD)
Defendants.	:	

DECLARATION OF SUE ANN UNGER

I, Sue Ann Unger, declare under the penalty of perjury pursuant to 28 U.S.C. § 1746 that:

1. I am, and at all times relevant hereto have been, a Senior Deputy Attorney General in the Office of Attorney General of the Commonwealth of Pennsylvania.

2. Attached as Exhibit 1 hereto is a true and correct copy of an email (without its attachments) that I sent to Ilann Maazel, Esquire and others on September 28, 2018 (the "September 28 Email").
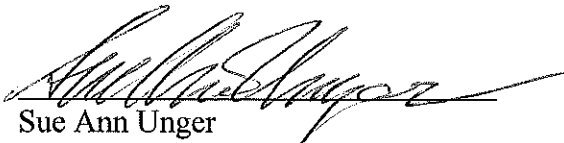
3. Attached as Exhibit 2 hereto is a true and correct copy of a document entitled "Pennsylvania Voting System & Electronic Poll Book Report," which was attached to the September 28 Email.

4. Attached as Exhibit 3 hereto is a true and correct copy of a document entitled "Senate State Government Committee Public Hearing on SB 1249 September 25, 2018, Written Testimony of Jonathan Marks, Commissioner Pennsylvania Department of State Bureau of Commissions, Elections and Legislation, which was attached to the September 28 Email.

5. Attached as Exhibit 4 hereto is a true and correct copy of an email that I received from Ilann Maazel, Esquire on October 9, 2018.

I declare under penalty of perjury under the law of the United States of America that the foregoing is true and correct.

Executed on December __9__, 2019.

Sue Ann Unger
Senior Deputy Attorney General

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EXHIBIT 1

Unger, Sue Ann

From:	Unger, Sue Ann
Sent:	Friday, September 28, 2018 4:53 PM
To:	'imaazel@ecbalaw.com'; 'africk@ecbalaw.com'; 'bwaldron@mmwr.com'; 'mhaverstick@kleinbard.com'; 'joshua@reedpalaw.com'; 'sekulow@aclj.org'; 'acelli@ecbalaw.com'; 'dlieb@ecbalaw.com'
Subject:	Stein case re settlement discussion
Attachments:	Voting System Status Report_September 19%2c2018.pdf; DOS Directive Concerning Purchase of Voting Systems_02.09.2018.pdf; 4.12.18-DOS-New Voting Systems 2019.pdf; Jonathan Marks Testimony - Senate State Government Committee 0925 Hearing.pdf; Directive to Vendors v06122018 with Attachments.pdf

In advance of our discussion next week, I am forwarding some documents that we're hoping could favorably influence settlement discussions.   Please forward if I've missed someone. The documents are described below—I'm sorry but just realized that the attachments are not necessarily in the below order—but it is easy to figure out. Have a good weekend.

- Most recent Pennsylvania Voting System and E-Poll Book Status Report which includes the specific voting systems (with model numbers) that DOS expects will be presented for examination in Pennsylvania.

- Email dated February 9, 2018, from Commissioner Marks to the county boards of elections with a directive informing them that all voting systems purchased on or after February 9, 2018, must be of the type that employs a voter-verifiable paper ballot or a voter-verifiable paper record of the votes cast by a voter.

- Email dated April 12, 2018, from Commissioner Marks to the county boards of elections with a press release informing counties they must have voter-verifiable paper record voting systems selected no later than December 31, 2019, and preferably in place by the November 2019 general election.

- Revised examination directive to voting system vendors about the types of voting systems that will be accepted for examination (*see* ¶ 3 of directive) which includes a new security standard (Attachment E) that reinforces the February 9 directive that all voting systems purchased on or after February 9, 2018, in Pennsylvania must be of the type that employs a voter-verifiable paper ballot or a voter-verifiable paper record of the votes cast by a voter.

- Written testimony dated September 25, 2018, from Commissioner Marks presented to the Senate State Government Committee which contains an overview of the state process and timelines for voting system replacement, information about the certification of new voting systems and the standards for certification, and the status of county endeavors.

I also expect to obtain the contract to forward on Monday through which counties can buy voting systems -- it contains some requirements that we expect that plaintiffs would support.

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EXHIBIT 2

Commonwealth of Pennsylvania
Department of State
September 21, 2018

PENNSYLVANIA VOTING SYSTEM & ELECTRONIC POLL BOOK REPORT

Summary

The information in this report is intended to provide a snapshot of recent and upcoming actions taken by the Department of State (DOS) regarding the examination and certification of voting systems and the approval of electronic poll books.

Please keep in mind that voting systems must first be examined by an authorized federal testing laboratory and certified by the Election Assistance Commission (EAC) before it can be submitted for examination to the DOS.

If a voting system or electronic poll book does not appear on the DOS voting system page or in this status report, it has not been submitted for examination.

Certified Systems and Systems Under Test

- For information about voting systems and electronic poll books that have been certified or approved by the DOS please refer to our voting system page here.
- For information about voting systems that have either been certified or are currently undergoing certification testing at the federal level please refer to the Election Assistance Commission's Voting System Testing Updates Blog and System Certification Process page.

Dept. of State Systems Under Test Snapshot

Electronic Voting Systems

The systems are listed in the order in which we anticipate PA certification examination.

Manufacturer	Model	PA Test Phase
Unisyn	OpenElect 1.3.0.2A	Completed certification
ES&S	EVS 6.0.0.0/6.0.2.1	PA Testing on new release EVS 6021 with fixes to anomalies scheduled during the week of Sep 24, 2018
Unisyn	OpenElect 2.0A	PA Testing on new release OpenElect 2.0A2 with fixes to anomalies scheduled during the week of Oct 1, 2018

Dominion Voting Systems	Democracy Suite 5.5 *(with ICX-BMD)*	Completed EAC certification. PA examination scheduled during the week of Oct 15,2018
ClearBallot	ClearVote 1.4.5	Pending EAC certification report. DOS is working with ClearBallot to schedule PA examination on or before Oct 29th, 2018
Hart InterCivic Inc	Verity Voting	Vendor submitted application for EAC certification on 9/17/2018. DOS will begin working with vendor to finalize PA testing timelines.

Electronic Poll Books

Manufacturer	Model	PA Test Phase
VOTEC	VoteSafe(version PA-Cert)	Approved with Conditions
Tenex Software Solutions	Precinct Central 3.2.0.1	Approved with Conditions
ES&S	EZRoster 3.5.0.1	Approved with Conditions
Robis	AskEd 3.4.128.7	Approval Report Review
Knowink	Pollpad 1.1.3	Approval Report Review

Dept. of State Actions Since Previous Status

Description of Action	Date of Action	Status
Discussion with ES&S, SLI and EAC to follow EVS 6020 and 6021 EAC certification testing	August /September 2018	In progress
Unisyn OpenElect 2.0A Voting System Examination	July 27-29, 2018	Complete (DOS will test Unisyn new release OpenElect 2.0A2 the week of Oct 1st.)
Discussion with Unisyn, SLI and EAC to follow EAC certification	August /September 2018	In progress

testing for OpenElect 2.0A2		
Work with Dominion to streamline testing efforts for Democracy Suite 5.5	August /September 2018	In progress
Work with Clear Ballot to streamline testing efforts for ClearVote 1.4.5	August /September 2018	In progress

Dept. of State Upcoming Actions

Description of Action	Due date	Progress
ES&S EVS 6021 Voting System Examination	Sep 24 -28, 2018	Test Planning *(Specific tests to validate the fix done to EVS 6000 and a full regression test of the entire system by running Closed primary and General Election is being planned.)*
Unisyn OpenElect 2.0A2 Voting System Examination	Oct 1-5,2018	Test Planning *(Specific tests to validate the fix done to OpenElect 2.0A and a full regression test of the entire system by running Closed primary and General Election is being planned.)*
Dominion Democracy Suite 5.5 Voting System Examination	Oct 15-19,2018	Test Planning *(functional test for each PA Election Code Requirement and Accessibility and Security Testing.)*
ClearBallot ClearVote 1.4.5	Oct 29-Now 2,2018	Test Planning *(functional test for each PA Election Code Requirement and Accessibility and Security Testing.)*
Get Secretary's signature on Knowink PollPad electronic 1.1.3 electronic poll book approval report	September 2018	Report waiting on final review and approval of a condition regarding sale/transfer of ownership.
Get Secretary's signature on Robis AskEd electronic poll book approval report	September 2018	Report waiting on final review and approval of a condition regarding sale/transfer of ownership.

Important Notes/Comments

EXHIBIT 3

Senate State Government Committee
Public Hearing on SB 1249
September 25, 2018, 9:30 AM
Dauphin County Administration Building
Written Testimony of Jonathan Marks, Commissioner
Pennsylvania Department of State
Bureau of Commissions, Elections and Legislation

Thank you, Chairman Folmer, Minority Chair Williams, and members of the Senate State Government committee for allowing the Department of State (Department) to submit written comments and testify at today's hearing. We are pleased to provide the following overview of the national environment, state process and timelines for voting system replacement, information about the certification of new voting systems and the standards for certification, the status of county endeavors, and support for Election administration reforms.

I.   Overview of National Context and Commonwealth Process

Secure, resilient and accessible elections are of great importance to all of us who administer them. As public servants charged with protecting our most fundamental right, we are always attentive to our responsibility to ensure that right can be exercised freely, securely and with full confidence in the integrity of both the processes and the machinery of elections. By virtually everyone's standards, our current voting systems are approaching the end of their usable life, and they are built on operating systems that are no longer supported or soon will not be supported by the manufacturers. Over the last year, experts and elected officials from across the country and world, including the President of the United States, U.S. Senate Intelligence Committee, and the U.S. Department of Homeland Security, have issued strong warnings about the risks and vulnerabilities we face from both cyber threats and aging voting systems.[1]

These experts, including professionals in national security, intelligence, computer science, elections, and more, have urged states to act as quickly as possible, to replace older voting machines with voting systems that produce a paper record that voters can verify, and which enable robust post-election audits. For example, in the last several months, U.S. Homeland Security Secretary Kirstjen Nielsen has been escalating her calls for states and counties to quickly implement these types of systems. Over the last month, she has called on "every state in the Union to ensure that by the 2020 election, they have redundant, auditable election systems. The best way to do that is with a physical paper trail and effective audits so that Americans can be confident that — no matter what — their vote is counted and counted correctly."[2]

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[1] See, e.g., President Trump's Executive Order *on Imposing Certain Sanctions in the Event of Foreign Interference in a United States Election*, https://www.whitehouse.gov/presidential-actions/executive-order-imposing-certain-sanctions-event-foreign-interference-united-states-election/ (declaring a national emergency to deal with this threat)(September 12, 2018); U.S. Senate Intelligence Committee Report, Summary of Initial Findings and Recommendations (May 2018), https://www.burr.senate.gov/imo/media/doc/RussRptInstlmt1-%20ElecSec%20Findings,Recs2.pdf.

[2] Secretary Kirstjen M. Nielsen Remarks: Rethinking Homeland Security in an Age of Disruption, https://www.dhs.gov/news/2018/09/05/secretary-nielsen-remarks-rethinking-homeland-security-age-disruption; https://www.washingtonpost.com/world/national-security/hacking-cyberattacks-now-the-biggest-threat-to-us-

The STEM sector and other professional fields also strongly urge these actions. This month, the National Academies of Sciences, Engineering, and Medicine issued a report, "Securing the Vote: Protecting American Democracy." The report assesses current technology and standards for voting, and recommends steps that federal, state, and local governments, election administrators, and vendors of voting technology should take to improve the security of election infrastructure, including that all elections should be conducted with paper ballots by 2020, and states should mandate risk-limiting audits within a decade.[3] Additionally, multiple courts have issued decisions in recent weeks indicating that states and counties that fail to heed these changed standards for security and continue to employ paperless Direct Recording Electronic voting machines (DREs) may violate voters' federal constitutional rights.[4] Pennsylvania is one of only a handful of states remaining that use all or primarily paperless voting systems.

In light of these circumstances, and pursuant to our statutory responsibility, the Department has the obligation to determine whether a voting system has adequate security measures and demonstrable accuracy, such that the Commonwealth's voters can have confidence that their vote is secure and will be accurately counted. Due to the age of our voting systems, the changing nature of the threats we face, and the virtually unanimous sentiment that voting systems must be fully auditable and capable of recovering quickly from error or attack, we have determined that our current voting systems need to be responsibly upgraded. Toward this end, the Department has been effectuating a conscientious and feasible plan to ensure that Pennsylvania voters are using the most secure, auditable, accessible, and resilient voting machines available, meeting current security standards. To do this responsibly, the Department spoke with many states and counties about timelines under which this transition could occur, and determined that while we could not expect counties to achieve this goal in 2018, that 2019 or early 2020 would provide at least as much time as many other jurisdictions which have transitioned.

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trumps-homeland-security-chief-warns/2018/09/05/d0045800-b119-11e8-a20b-5f4f84429666_story.html?utm_term=.9da708d971c8; See also https://thehill.com/policy/cybersecurity/403148-dhs-chief-calls-on-election-officials-in-all-50-states-to-have ("Nielsen told a group of reporters touring the Department of Homeland Security's National Cybersecurity and Communications Integration Center (NCCIC) in Arlington, Va., that she wants "all state and local election officials to make certain that by the 2020 presidential election, every American votes on a verifiable and auditable ballot.")

[3] http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=25120; See also National Election Defense Coalition Letter to Elections Officials, https://www.electiondefense.org/letter-to-elections-officials (including support from FreedomWorks and Americans for Tax Reform, among many other bi-partisan and non-partisan organizations and officials).

[4] See, e.g., *Stein v. Cortés,* U.S. District Court, E.D. Pa., 2:16-cv-6287 (Decision 09/07/18 at 40-1) (Denying the Department's Motion to Dismiss some of the plaintiffs' constitutional claims, allowing claims to go forward alleging that the use of the paperless DREs may violate plaintiffs' First Amendment, Due process, and Equal protection claims based on the risk of casting an ineffective vote and based on the unequal use of DRES in some counties but not others, and indicating that defendants will have to "justify" continuing to use paperless DREs); *Curling v. Kemp*, U.S. District Court, N.D. Georgia, 1:17-cv-02989, (Decision 09/17/18)(Giving substantial weight to the fact that "National security experts and cybersecurity experts at the highest levels of our nation's government and institutions have weighed in on the specific issue of DRE systems in upcoming elections and found them to be highly vulnerable to interference, particularly in the absence of any paper ballot audit trail;" and finding that Plaintiffs are substantially likely to succeed on the merits of one or more of their constitutional claims, that the DRE voting system deprives them or puts them at imminent risk of deprivation of their fundamental right to cast an effective vote (i.e., a vote that is accurately counted), and when they vote by DRE, their vote is in jeopardy of being counted less accurately and thus given less weight than a paper ballot.)

To initiate our plan, in December 2017, the Department held a voting systems vendor forum that was open to the public, county election officials, and other stakeholders, to begin exploring new voting machines options for Pennsylvania. In February 2018, the Department issued a directive requiring that all new voting systems procured by Pennsylvania counties have a voter-verifiable paper record. In April 2018, we released an Invitation for Bid (IFB) for vendors to submit proposals for these systems from which counties may choose. We also issued further direction that Pennsylvania counties must select new voting systems that meet these standards by December 31, 2019, urging the counties to implement these new voting systems as soon as feasible and no later than the 2020 Primary Election. On April 26, the Department held a voting systems vendor demonstration, allowing the public, legislators, county officials, press and all stakeholders to view and try the new voting systems under consideration. (Thank you to Senator Folmer for attending this demo.)

Over the last 10 months, the Department has visited dozens of counties, spoken at several county government conferences, provided counties feedback on proposals, suggested timelines for implementation, recommendations for negotiation of terms, and much more. More details on the status of county endeavors will be provided later in this testimony.

II.   Certification and Standards for New Systems

To ensure the highest level of security, resiliency, and accessibility for Pennsylvania voters, the Department released new voting system security and accessibility standards in Spring 2018, in order to meet current expert recommendations on security and accessibility. New voting equipment must not only include voter-verifiable paper records and achieve U.S. Election Assistance Commission (EAC) certification, but must also be assessed under these comprehensive state standards.

The PA Security Standard[5] incorporates tests to ensure confidentiality, vote anonymity, integrity, security, and auditability of the voting systems. The test specifications include but are not limited to:

- Penetration testing that evaluates the security of the voting system by trying to exploit its potential vulnerabilities.

- Access control testing to confirm that the voting system can detect and prevent unauthorized access to the system and election data.

- Evaluation of voting system audit logging capabilities to confirm that the system logs will allow auditing, as well as investigation of any apparent fraudulent or malicious activity.

- Tests that ensure every physical access point is well secured and system software and firmware is protected from tampering.

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[5] The complete Security Standard may be found here:
https://www.dos.pa.gov/VotingElections/Documents/Voting%20Systems/Directives/Conduct%20Directive%20Att%20E%20-%20PA%20Voting%20System%20Security%20Standard%20v06122018.pdf

The PA Accessibility Standard aims to provide better information about the usability of voting systems for voters with disabilities. This standard entails expert review by usability and accessibility examiners and feedback from the voters and poll workers who will use the voting systems, identifying areas of concern and level of severity as follows:

- Voters with disabilities use the system, voting a reasonable length PA ballot, and providing feedback. The examiners facilitate, observe and identify best practices for use.

- Election officials/poll workers test the accessibility features, especially how they are activated during an election, and comment on the usability of system.

- The expert examiners consolidate the findings into a report, identifying summary measures needed for voters to use the voting system effectively, and poll worker and voter education requirements or guidance, if any.

One voting system has already completed state and federal certification. A second voting system is wrapping up its testing after addressing issues identified during Kansas's primary election in August; we expect this testing to be complete in September and the system to be ready for certification. A third voting system has completed federal certification, was examined by the state at the end of August, and is on schedule to finish certification in Fall 2018. A fourth system has completed its federal testing and will be tested by the state in October. A fifth system has begun testing for both federal and state certification, and is expected to be ready for certification by Fall/Winter 2018. A sixth system is expected to initiate its process for federal and state certification in late Fall 2018.

With the transition to voting systems with paper records, the Commonwealth will also be bolstering our post-election audit requirements. We are currently gathering information about different models of risk-limiting audits to identify options that are not only effective but also as straightforward as possible to implement.

III.   Status of County Endeavors

The Department has been traveling around the state meeting with county commissioners, election directors, and other interested personnel to answer questions, offer assistance on every step of the process, serve as a central hub to help leverage negotiating power, and provide suggested task lists and timelines. Most counties have for months or even longer been exploring voting systems options, examining machines, seeking public input and quotes from vendors, and assessing preferred timeframes for implementation. One county, Susquehanna County, procured new systems and is implementing those new systems in the upcoming November election. Several other counties are planning to follow soon and implement new systems in the 2019 primary. Most counties appear most likely to implement new systems in the 2019 general election, though some counties may choose to implement in the 2020 primary.

The Department is working closely to provide support and assistance to all the counties, including the largest county, Philadelphia, which is working hard to take the steps necessary to procure and implement new systems. Philadelphia issued a Request for Information (RFI) on June 4, 2018, which stated their seeking of "statements of interest, capabilities, and Rough Order of Magnitude (ROM) cost estimates from all Respondents interested in, and capable of,

providing a State of Pennsylvania certified solution for Election Systems to include voting machines, electronic poll books and associated components in time for the 2019 General Election."[6] The Department will also be holding six regional voting system demonstrations around the state in November and December, both to assist counties and to provide public education. In addition, three legislative briefings will be held in the next month.

Not surprisingly, the biggest concern expressed by most counties is funding. The Department is investigating every option for funding and financing, including grant opportunities, creative financing options, appropriations, partnerships, bonds, leases and more. We have designated 100% of the funds Pennsylvania will receive in federal funding under the Omnibus Appropriations Act of 2018 to be distributed proportionately to the counties for replacement of the voting systems, which will total $14.15 million including the state's 5-percent match. Though a welcome down payment, this is obviously not nearly enough. The administration is advocating strongly for additional federal funding, and is committed to working with the Pennsylvania legislature for an appropriation of state funding next year. We expect this system replacement initiative to be a cost-share of federal, state, and local dollars. We are also exploring options for long-term planning and saving for future system upgrade needs.

IV.   PA Election Law Advisory Board and other Election Administration Reforms

The Department is keenly aware that replacing aging voting equipment is only one piece of restoring and maintaining voters' confidence in elections. When we meet with county election officials, they express their objectives to make the voting experience better for their voters, but feel constrained by outdated election laws that limit their ability to be responsive to the needs of today's voters. These election officials have some valuable ideas about how to both serve their voters better, and increase efficiency and cost-savings, as evidenced by their thoughtful testimony here today. We share many of these goals, including enacting No-excuse Absentee Voting with timeframes and procedures that meet today's needs, reducing wasteful and outdated printing requirements, and addressing poll worker shortages, among other issues. We are reviewing the Pennsylvania Election Law Advisory Board bill proposed by Senator Vogel and look forward to continuing our collaboration with county election officials, other elections stakeholders, and the legislature to modernize Commonwealth elections.

V.   Conclusion

The Commonwealth's voting processes work well and voters can be confident in casting their votes, thanks to the robust security measures that are in place to protect the integrity of our elections and the equally robust commitment of local, state, and federal officials. County elections personnel and the tens of thousands of poll workers who will be on duty at polling locations across the Commonwealth on November 6th are extremely dedicated and work diligently to provide the most secure and efficient elections they can to their voters. The Department works closely with all 67 county boards of elections, as well as experts from the

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[6] For the complete RFI, see
http://www.phila.gov/rfp/Documents/Election%20Systems%20RFI%20for%20Review%20and%20Posting%20FINAL.pdf.

state and federal Departments of Homeland Security, Center for Internet Security (CIS), the National Guard, the PA Emergency Management Agency (PEMA), state and county IT staff, PA State Police, and many other key partners, and these partnerships and resources have grown tremendously over the last year.

Nonetheless, we must move forward responsibly based on the nearly unanimous recommendations of security experts. The Administration is strongly committed to working with the legislature to help fund these necessary upgrades on behalf of Pennsylvania voters, and to pass legislation to improve efficiency, cost-savings, and increasing accessibility for the voters of this Commonwealth.

Thank you for your time and efforts to enhance election security and enact voting reforms.

EXHIBIT 4

Unger, Sue Ann

From:	Ilann M. Maazel <imaazel@ecbalaw.com>
Sent:	Tuesday, October 9, 2018 11:16 AM
To:	Unger, Sue Ann; Doug Lieb; jpapianou@mmwr.com; Ali Frick; Waldron, Brett
Cc:	Ilann M. Maazel
Subject:	RE: Stein case re settlement discussion

FRE 408/Settlement Purposes Only

Hi Sue,

Here is some feedback before our call this afternoon. The big point is that that list of models in the "PA voting systems & electronic poll book report" includes a suite of election systems, some of which don't use paper ballots, and some of which do. For example, I am told, Hart Intercivic Verity Voting includes the Verity Touch, a paperless DRE system. So I think we (and you) need a more granular list of which particular machines/election systems are being proposed for certification.

In addition, the following is from Alex Halderman:

I reviewed the voting systems that PA is considering, and I don't *disapprove* of any of them in their entirety. All of them (that use paper ballots) can be used with reasonable security if implemented with voter-verified paper ballots and robust manual audits.

That said, there are features of each of these voting systems that can render them unsafe if activated. Perhaps you can urge PA to certify them with restrictions that prohibit these dangerous functions:

- At least Dominion and ClearBallot provide support for phony "digital audits". In ClearBallot's "ClearAudit" system, workers review digital scans of the ballots, rather than manually inspecting the paper. Dominion has its own "digital audit log" that involves inspecting electronic records rather than paper ones. Neither is software independent, and obviously malware in the voting system could tamper with both kinds of digital records. PA should require that post-election audits be performed by having people manually inspect the original paper records, and not by these vulnerable substitutes.

- The ES&S ExpressVote machines can work as traditional ballot marking devices, but it's also possible to configure them in ways that defeat the purpose of the paper trail. I've seen them set up to print the ballot but not show it to the vote at all (the machine just scans it internally and stores it in a ballot box). This means there's paper but it's not voter-verified, so it's of no use in an audit. Andrew Appel recently wrote about another configuration of the ExpressVote, in which it asks voters whether they want to verify their ballots *before* printing them, and only allows the voter to inspect the paper if they say yes. As Andrew explains (https://freedom-to-tinker.com/2018/09/14/serious-design-flaw-in-ess-expressvote-touchscreen-permission-to-cheat/), this also defeats the value of an audit, since malware could be programmed to cheat only if the voter opts not to see the paper. PA should require the machines to be configured so that every voter has an opportunity to see their completed ballot *after* it's been printed.

- At least several of these voting systems include machines that have modems that can be used to transmit election-night results over landlines or 4G networks. 4G modems are especially concerning, since the 4G network is essentially an extension of the Internet. In either case, modem transmission means the voting

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machines and back-end server are not fully airgapped, which increases the threat of remote compromise. I would strongly encourage PA to prohibit the use of modems or 4G networks for election result return, and to require the manufacturers to provide machines without modem hardware installed. (Cellular modem hardware can be an attack vector even if it's not used in normal election procedures.)

Talk soon,
Ilann

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From: Unger, Sue Ann <sunger@attorneygeneral.gov>
Sent: Monday, October 01, 2018 9:51 AM
To: Doug Lieb <dlieb@ecbalaw.com>; Ilann M. Maazel <imaazel@ecbalaw.com>; jpapianou@mmwr.com; Ali Frick <africk@ecbalaw.com>; Waldron, Brett <BWaldron@mmwr.com>
Subject: RE: Stein case re settlement discussion

Please see the attached cooperating purchasing agreement set up by DOS that counties can use to purchase new voting systems and electronic poll books. An original version has been out since April. The DOS recently updated it to include electronic poll books. DOS has added many conditions to this agreement, including provisions regarding foreign ownership and assignment. Counties do not have to procure using this vehicle. Some of these conditions may be repeated in the voting system certification reports.
We look forward to conferencing later this week.

Sue Ann Unger, Sr. Deputy Attorney General
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